glutathione and cysteine also had no effect. Complete inhibition was obtained with Hg^{2+} and *p*-chloromercuribenzoate. At a concentration of 0·01 mM the latter compound produced 90% inhibition, which was reversed by reduced mM-glutathione or mM-cysteine, but not by ascorbate or dithionite.

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Starch-gel Electrophoresis of Transaminases in Human-Tissue Extracts and Sera

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A method has been developed permitting the direct visualization of zones of glutamic–oxaloacetic transaminase activity after vertical starch-gel electrophoresis (Smithies, 1959). This depends on the fact that in the transaminase reaction aspartate is converted into oxaloacetate and the latter can then be reduced in the presence of $NADH_2$ and malic dehydrogenase, whilst the coenzyme is oxidized.

A solution is prepared containing $NADH_2$, 3 mg.; L-aspartate (0·05 M in 0·1 M-phosphate, pH 7·4) 1·5 ml.; α-oxoglutarate (0·005 M in 0·1 M-phosphate, pH 7·4) 1·5 ml.; pyridoxal phosphate (500 μg./ml.) 0·2 ml.; malic dehydrogenase (L. Light and Co., 0·5 mg. of protein/ml.) 0·05 ml., and water, 1·5 ml. After the electrophoresis, a filter paper soaked in the above solution is applied to the surface of a slice of the gel and incubated for up to four hours at 36·5°. Periodic inspection is carried out in ultraviolet light; zones of activity show marked diminution of fluorescence. The pattern is then developed for direct visual inspection, and for photography, by immersing the gel in a solution consisting of 3·75 mg. of the tetrazolium salt MTT and 0·3 mg. of *N*-methylphenazonium methosulphate in 15 ml. of water. After gentle rocking for 5–10 minutes, zones of initial transaminase activity are indicated by pale areas due to the relative absence of formazan production. Only those areas which had also shown diminution of fluorescence in ultraviolet light are considered as significant.

In saline extracts of human liver, heart and kidney, a fast-migrating component on the anode side of the origin and a slow-migrating component on the cathode side were demonstrated. The bands were rather broad and attempts to demonstrate a fine structure have been unsuccessful. Similar findings for rat-liver extracts after agar-gel electrophoresis have been reported (Boyd, 1961). In extracts of human brain and skeletal muscle no cathode component was observed.

In human sera, normal and pathological, there was generally only one band, in a position midway between the fast α_2- and β-globulins, and corresponding with the fast component of tissue extracts. In one patient with a myocardial infarction a second anode band was seen just ahead of the slow α_2-globulin. This did not correspond with the cathode activity of the tissue extracts. In a patient with carbon tetrachloride poisoning a second band was also seen on the anode side. With both these sera, by doubling the quantity of $NADH_2$ in solution and considerably prolonging the incubation period it was, however, possible to demonstrate a faint zone of activity on the cathode side.

An unsuccessful attempt was made to develop a technique for glutamic–oxaloacetic transaminase by coupling the transamination with glutamic dehydrogenase and NAD.

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Studies on the Composition of Muco-bacterial Dental Plaque

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Dental plaque is the muco-bacterial film which forms on unbrushed teeth and it has been implicated in the development of caries and calculus. It has usually been assumed that the enamel surface of the teeth is in equilibrium with saliva and that plaque will have essentially the same ionic composition as saliva.

Plaque samples were collected from students and 11-year-old school children and analysed for water, Ca, inorganic P, organic P, Na and K and compared with analyses of the solid material, mostly bacteria, centrifuged down from saliva (salivary sediment), which has often been used experimentally as a substitute for plaque. Plaque contained all the inorganic constituents at levels greater than expected from salivary concentrations whereas sediment concentrated only calcium, and hence it would appear hardly justifiable to use sediment as a substitute for plaque. No significant difference was found between plaque from students and school children, in whom calculus formation is rare, which suggests that the high calcium values in plaque are not necessarily evidence of early calculus formation.

Plaque from the lower anterior teeth was found to contain significantly more calcium than plaque